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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,962	07/25/2003	Robert E. Oehman JR.	2802-404-022	3980

7590 05/04/2005

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EXAMINER

PICKARD, ALISON K

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,962

Applicant(s)

OEHMAN, ROBERT E.

Examiner

Alison K. Pickard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Totain (5,451,066).

Totain discloses a shaft seal comprising a cylindrical body 7 having a core with at least one internal groove 11 for pumping. The body has at least three discrete radially extending recesses 14 opening along an exterior surface and fluidly connected with a circumferential cooling passage 13 surrounding the core to provide thermal management. The recesses are considered axially elongated in that they have an axial dimension.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, 7, 9, 11-15, 17, 18, 21, 23-25, 27, 28, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Airhart.

Airhart discloses a gear pump/fluid transfer device and shaft seal combination comprising a housing, plural plates, ports, gears, teeth, cavities, and a drive shaft (see Fig. 1 and col. 4). The

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shaft seal comprises a cylindrical body 36 having a core with an axial passage 40 with a groove 54. The body includes plural radially extending recess 62 opening along an exterior surface of the seal and circumferentially spaced. The recesses are fluidly connected with an annular passage 56 to provide thermal management of the seal. Airhart does not disclose at least three recesses. Using at least three recesses is considered a duplication of parts design choice. See *In re Harza*, 124 USPQ 378 (CCPA 1960). Further, it is known to use at least three inlets in such a shaft seal as evidenced by Totain. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use at least three recesses in the body.

5. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stehr (5,462,420) in view of Airhart.

Stehr discloses a gear pump/fluid transfer device and shaft seal combination comprising a housing, plural plates, ports, gears, teeth, cavities, and a drive shaft. The seal comprises a cylindrical body 7 having a core with an axial passage with a groove 21. The seal has an annular cooling passage 35, a series of axial through bores with fasteners 11, and a constant radial dimension along the outer side wall. Stehr does not disclose the radial recesses. Airhart teaches a shaft seal for a pump/fluid device. Airhart teaches a seal having plural radial recesses connected to an annular cooling passage. Airhart teaches that the radial recesses are used to deliver a fluid to the cooling passage to provide thermal management of the seal. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the seal of Stehr with the recesses taught by Airhart to deliver fluid to the cooling passage and thermally manage the seal. Airhart does not disclose at least three recesses. Using at least three recesses is considered a duplication of parts design choice. See *In re Harza*, 124

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USPQ 378 (CCPA 1960). Further, it is known to use at least three inlets in such a shaft seal as evidenced by Totain. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use at least three recesses in the body.

Regarding claims 5, 16, and 26, Airhart does not disclose that the surface area around the side wall encompassed by the recess openings is greater than the surface area of the remaining portions. This is considered a design choice. It is not considered inventive to discover the workable or optimum ranges by routine experimentation. See *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to make the surface area of the openings greater than the remaining side wall portions as a matter of choice in design.

Response to Arguments

6. Applicant's arguments filed 1-25-05 have been fully considered but they are not persuasive and are moot in view of the new grounds for rejection.

Applicant argues that Airhart teaches a water cooled shaft and not an air-cooled shaft. The examiner disagrees. Airhart discloses that a "cooling fluid" is used. Airhart only discloses water as an example. It is not limited to the use of water and would be capable of using air as the fluid. Further, none of the claims positively claim air. The limitation of "air" is either used in the preamble or in an intended use statement. Regardless, Airhart is capable of using air as the fluid. Totain clearly shows the use of air as the fluid.

As stated above, using at least three recesses is considered a mere duplication of parts. Applicant has not disclosed any criticality with this number, i.e. no unexpected result has been associated with using more than two recesses. Using more than two recesses would still provide

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the function of delivering the fluid to the channel. Also, making the surface area of the recess greater than the remaining outer wall is an optimization as criticality has not been associated with this feature. The argument regarding the fins is not understood since Stehr does not have fins. Airhart is only being applied for its teaching of recesses.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alison K. Pickard whose telephone number is 571-272-7062. The examiner can normally be reached on M-F (10-7:30), with alternate Friday's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on 571-272-7049. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alison K. Pickard
Primary Examiner
Art Unit 3676

AP